

1/2 GIC UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--CELLULAR MEMBRANE FORMATION AND POSSIBILITY OF CONTROLLING IT FOR
PREVENTION OF WHEATLODGING -U-
AUTHOR--(03)-LYASKOVSKIY, M.I., KALININ, F.L., SHALABAI, M.S.
COUNTRY OF INFO--USSR
SOURCE--FIZIOL. BICKHIM. KUL'T. RAST. 1970, 2(2), 181-7
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--WHEAT, CELL PHYSIOLOGY, PLANT PHYSIOLOGY, CHLORINATED ORGANIC
COMPOUND, GIBBERELLIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605001/E07 STEP NO--UR/0654/70/C02/002/0181/0187
CIRC ACCESSION NO--AP0134375

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0139375

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLOROCHOLINE CHLORIDE (CCC) INHIBITED THE BIOSYNTHESIS OF THE BASIC COMPONENTS OF THE CELL WALL OF THE WINTER WHEAT MIRNOVSKAYA 808. THE STEM DEVELOPED BETTER AND THE RESISTANCE TO LODGING INCREASED. GIBBERELIN APPLIED WITH INCREASED N SUPPLY DECREASED THE AMT. OF PLASTIC SUBSTANCES IN THE GROWING TISSUE, INHIBITED THE FORMATION OF THE CELL WALL, AND REDUCED THE DEVELOPMENT OF STEM TISSUE, RESULTING IN DECREASED RESISTANCE TO LODGING.

FACILITY: INST. PLANT PHYSIOL., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 669.295.5'28.017.3

KOLACHEV, B. A., MAMONOVA, F. S., and LYASOTSKAYA, V. S., Moscow

"Martensite Decomposition in Ti-Mo Alloys During Tempering"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 200-203

Abstract: The mechanism and kinetics of martensite decomposition were investigated for Ti-Mo alloys containing 2.1, 4.4, 5.9, and 8.3% Mo. Choice of alloys was made such that after quenching from the beta region (950° C) they would have phase compositions of: alpha', alpha'', and low-alloyed alpha'' and alpha''+beta. It was found that decomposition of alpha'-martensite during tempering (450° C) yields a depleted alpha'-phase + the beta-phase which in turn yields the alpha-beta phase. Decomposition of alpha''-martensite follows two paths: 1) the low-molybdenum concentration path of alpha'' to depleted alpha'' + beta to the alpha-beta phase; and 2) the high-molybdenum concentration path of: alpha'' → beta → beta+omega → beta+alpha'' → beta+alpha''+alpha'' → beta+alpha. Decomposition of alpha'-martensite is accomplished by little alloy strengthening while alpha''-martensite decomposition starts with significant alloy strengthening and then weakening (softening) where the softening effect is determined by the alloy content and the martensite decomposition process. The most softening was observed for alpha''+beta Ti-Mo alloys. Three figures, five bibliographic references.

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Titanium

USSR

UDC 669.295:539.295

LYASOTSKAYA, V. S., KOLACHEV, B. A., SOVALOVA, YE. G., Moscow Aviation Engineering Institute, Departments of Physical Metallurgy and Hot Treatment of Metals

"Dilatometric Investigation of Transformations in Alloys of Ti-V and Ti-Al-V Systems"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No. 4, 1973, pp 127-131

Abstract: Binary alloys, containing 4, 10, 16, and 25% V, having different structures (α' , α'' , $\beta+\omega$, and β) after quenching from the β region, and ternary alloys with the same vanadium content but with 3 and 6% aluminum, were studied. In alloys of the Ti-V system, the decomposition of α' -martensite does not cause notable volume effects, but the decomposition of α'' -martensite is accompanied by a compression effect at temperatures above 400°C. Alloying Ti-V alloys with 3% Al leads to increased volume effects accompanying the decomposition of α' - and α'' -martensite during heating, but alloying with 6% Al reveals an almost complete disappearance of these volume effects. Results produced in this study confirmed the scheme of unstable

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LYASOTSKAYA, V. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 127-131

beta-solid solution in Ti-V alloys as proposed by S. G. FEDOTOV and his associates, and indicate the essentially different processes occurring in Ti-V alloys above and below 280°C. Aluminum diminishes volume effects caused by the formation and transformation of the omega-phase. A significant effect of compression at temperatures above 500°C can be detected in the presence of aluminum which has been linked with redistribution of aluminum between the alpha- and beta-phases. 3 figures; 9 bibliographic references.

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USSR

UDC 669.295.539.292

KOLACHEV, B. A., MAHONOVA, F. S., LYASOTSKAYA, V. S., and VEDNEVA, L. S.,
Moscow Aviation Technological Institute. Chair of the Science of Metals and
Hot Working of Metals

"Investigating the Structure and Properties of Annealed Alloys of Ti-Mo System"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya,
No 3, 1973, pp 120-124

Abstract: A study was made of the rules of changing properties and phase composition of titanium-molybdenum alloys, depending on molybdenum content. The investigated alloys were produced from TC-100 sponge with additions of 0.06% Fe, 0.02% Si, 0.04% O₂, and 0.03% C. The alloys were annealed by heating to 950°, with subsequent soaking for one hour and cooling to 800° and 750° in air and 700° and 650° in water. The influence of Mo-content on the differently annealed alloys and their mechanical properties is demonstrated. Titanium alloys and their mechanical properties is demonstrated. Titanium alloys with 6.8, 8.6, 11.4, and 13% Mo annealed at 800, 750, 700, and 650° C, respectively, with air cooling have the highest strength. The two-phase Ti+11.4% Mo alloy with very fine (α + β)-structure without ω-phase possesses maximum strength

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KOLACHEV, B. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 120-124

characteristics when water cooled after annealing at 700-650° C. In Ti-Mo alloys, the ω -phase does not develop with air-cooling after annealing at temperatures $< 650^{\circ}\text{C}$ and with water-cooling after annealing at temperatures $< 700^{\circ}\text{C}$. five figures, three bibliographic references.

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Titanium

UDC 669.295.539.295

USSR

KOLACHEV, B. A., LOKSHIN, F. I., LYASOTSKAYA, V. S.,
SOVALOVA, Ye. G., and KOROBOV, O. S., Stupinsk Branch of Moscow
Aviation Technological Institute, Chair of the Science of Metals
and of Hot Working of Metals

"The Influence of Aluminum on the Structure and the Properties
of Ti+10%V Alloy"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Abstract: The influence of Al additions on the structure and properties of
Ti+10% V alloy, possessing the α'' martensite structure after hardening from
the β -region, was experimentally investigated. The demonstrated change of
the distance between (020) and (110) lines of the α'' -phase indicates that the
rhombic distortion of the lattice decreases with increasing temperature of
hardening. At the same time, the rhombic lattice distortion of martensite in
the alloy containing 6% Al is higher than in the alloy with 3% Al. The compar-
ison of Ti+10%V+3%Al and Ti+10%V+6%Al curves shows that the increase of Al con-
tent in the alloy widens the interval of the heating temperature of hardening,
after hardening from which the α'' -phase is stabilized. In hardening the
Ti+10%V alloy, with increasing hardening temperature the phases $\alpha + \beta$, $\alpha + \beta$
 $+ \omega$, $\alpha + \beta + \omega + \alpha''$, $\alpha + \alpha''$ and α'' develop in succession; in Ti +10%V+3%Al and

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KOLACHEV, B. A., et al., Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Ti+10%V+6%Al the phases $\alpha + \beta$, $\alpha + \beta + \alpha''$, $\alpha + \alpha''$, and α'' develop. Al prevents ω -phase formation in hardening and lessens the quantity of ω' -phase developing in the aging of hardened alloys. Three figures, one table, eight bibliographic references.

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USSR

UDC 669.295.539.292

KOLACHAEV, B. A., LYASOTSKAYA, V. S. and SOVALOVA, Ye. G., Moscow

"The Connection Between the Strength Properties and Phase Composition of Hardened Titanium Alloys"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 147-159

Abstract: A study was made of the relationship between metastable diagrams of the phase composition of hardened titanium alloys and equilibrium diagrams of state. The example of titanium alloys with β -isomorphic elements (Ti-V, Ti-Fe, Ti-Ni, Ti-Cr, Ti-Nb, and Ti-W) is used to demonstrate that the metastable diagram can be predicted on the basis of the diagram of state, providing the structures of titanium alloys after hardening from the β -domain are known. From the metastable diagram of the phase composition the quality dependence of mechanical properties of titanium alloys on their heating temperature in hardening can be established. The hardness dependence of Ti-V alloys on their heating temperature and phase composition, demonstrates the correlation between experimental data and theoretical curves. Four figures, eight bibliographic references.

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Heat Treatment

UDC: 669.295:539.292

USSR

LYASOTSKAYA, V. S., KOLACHEV, B. A. and SOVALOVA, YE. G., Department of Physical Metallurgy and Hot Working of Metals, Moscow Aviation Technological Institute

"Effect of Heat Treatment on the Structure and Properties of Alloys of the Ti-V System"

Ordzhonikidze, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, No 5, 1971, pp 128-132

Abstract: According to earlier research, vanadium may be effectively used to strengthen titanium alloys both as annealed and hardened. The objective of this study was the effect of age hardening of alloys as a function of structure and the effect of the temperature of heating for austenizing in the beta-region on the hardening of the aged alloys. The test specimens were alloys containing 4, 6, 8, 10, 12, 14, 16, and 20% V. The alloys were water quenched from 850 and 1000°C and then aged for 3 hrs at 200, 400, and 500°C. The specimens were faced to remove the gas saturated layer. In alloys with martensite structure (after quenching), maximum age hardening

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LYASOTSKAYA, V. S., et al, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, No 5, 1971, pp 128-132

was observed during α phase decomposition. In alloys with the $(\beta+\omega)$ phase, the strengthening effect appears to be slight. An increase in the temperature of heating for austenizing in the β -region increases the hardness of alloys with a martensite phase structure and leaves the hardness of β -alloys unaffected. The temperature of heating for austenizing in the β -region does not affect the aging of martensitic alloys. Increasing the austenizing heating temperature in the β -region promotes the aging effect of β -alloys induced by the formation of the ω -phase but does not affect the aging induced by the α -phase. (3 illustrations, 2 tables, 5 bibliographic references).

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UDC 669.295

KOLACHEV, B. A., MANONOVA, F. S., and LYASOTSKAYA, V. S., Moscow Aviation Technological Institute

"Composition of Martensite in Hardened Ti-Mo Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 115-116

Abstract: X-Ray diffraction analysis of Ti-Mo rods hardened at 950°C for 30 min. showed that the rhombic lattice distortion of the α' -phase increases with increasing concentration of molybdenum (above 4%), and it reaches maximum value when the molybdenum concentration reaches 6% and remains unchanged thereafter. The crystal lattice parameters a and $b \sqrt{3}$ are not equal, starting with 4% of Mo in alloy because of the appearance of the α' -phase with rhombic lattice. Difference between these two parameters increases with increasing concentration of Mo up to 6% and remains unchanged thereafter. Broadening of lines (11.4) and (10.3) indicated changes in the fine crystal structure due to the appearance of microstresses of the second order, which increase with increasing concentration of molybdenum from 0 to 6%. The obtained experimental results verify an earlier assumption that martensite phases in titanium alloys can be saturated with β stabilizers up to a certain threshold concentration. In the system Ti-Mo the martensite α' cannot contain more than 6% Mo. At higher concentrations of Mo in the alloy the

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KOLACHEV, B. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 115-116

splitting of lines of the α' "phase remains constant, and the lattice parameters remain unchanged. Two theories are presented regarding the existence and transformation of the β -phase which need additional experimental verification.

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USSR

UDC: 669.293.295.296:539.26:53.27

LYASOTSKIY, I. V., TYAPKIN, Yu. D., Institute of Metal Sciences and Physics of Metals, Central Scientific-Research Institute of Ferrous Metallurgy im. I.P.Bardin "Structure of Niobium-Titanium-Zirconium Alloys. Diffuse Scattering of Electrons and X-Rays in Alloys with 50 at. % Niobium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1260-1270.

Abstract: Electron microscope (microdiffraction) and x-ray methods are used to study the change in diffuse scattering for a series of alloys in the system Nb-Ti-Zr (50 at. % Nb) as a function of composition, heat treatment and observation temperature. This scattering is described by means of concepts of fluctuation displacement waves for all alloys. Diffuse scattering was observed in all alloys studied in the form of individual areas located in the space of the reverse lattice within octahedrons formed by the {111} planes passing through the junctions of the reverse lattice of the initial body-centered cubic solid solution. Considering the general nature of diffuse scattering, it can be described by means of concepts of fluctuation displacement waves, distorting the body-centered cubic structure. The form of diffuse scattering and consequently the spectrum of displacement waves change regularly with

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Lyasotskiy, I. V., Tyapkin, Yu. D., Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1260-1270.

changing relationship of the content of zirconium and titanium in the alloys. The flatter areas (in the form of a triple sheet at the edges of the octahedron) in the Nb-Ti alloy are transformed in the Nb-Zr alloy to hollow spherical areas displaced toward the center of the octahedron; the directions of the polarization vectors of the displacement waves are also changed. At the primary junctions of the solid body-centered cubic solution, diffuse scattering is also observed, changing from alloy to alloy in parallel with changes in scattering in the space between junctions of the reverse lattice. Diffuse scattering does not change significantly after heat treatment, or at various observations temperatures between -130 and +400° C.

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USSR

UDC 621.313.322.013.8.001.24

LYATKER, I. I.

"Numerical Method of Finding Optimal Control of Excitation of Synchronous Machines"

V sb. Vozbuzhdeniye, regulir. i ustovchivost' sinkhron. mashin (Excitation, Regulation and Stability of Synchronous Machines -- collection of works), Leningrad, Nauka Press, 1970, pp 82-92 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye208)

Translation: The problem of finding the control of excitation of synchronous machines most completely using the possibilities of the excitation system to improve dynamic stability is stated. Numerical methods of optimization are discussed. An algorithm is presented for calculating the optimal excitation voltage of synchronous machines in a complex power system based on the method of gradient descent. There are 3 illustrations and a 10-entry bibliography.

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USSR

UDC: 8.74

KLEVTSOV, V. P., LYAUDIS, V. Ya.

"Concerning the Structure of the Memory Process and Modeling of This Structure"

Probl. bioniki. Resp. mashved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 6, pp 60-62 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1108)

Translation: The structure of the process of the human permanent memory is considered on the basis of experimental psychological studies. The results of mathematical and physical modeling of the processing and storage of information on the lower levels of visual perception are presented. Use of the properties of neurons enables the description of an image with any required accuracy.

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USSR

UDC 619:576.809.8:576.851.55:636.51

RAKHMANINA, I. A., TRISHKINA, Ye. T., LYAUSHKIN, A. V., and SEREBRYAKOV, A. S., All-Union Institute of Experimental Veterinary Science

"Properties of *Cl. perfringens* of Type A Isolated From Chickens"

Moscow, Veterinariya, No 6, Jun 73, pp 99-100

Abstract: *Cl. perfringens* of type A was found to be present in clinically healthy chickens and chicks. Cultures of this microorganism were isolated in 5% of cases from the intestine and liver of healthy chickens and in 56 and 43% of cases, respectively, from the intestine and liver of chickens with gastrointestinal diseases. On peroral administration to chickens, *Cl. perfringens* was preserved in the gastrointestinal tract for at least 30 days. On intramuscular administration, it was present in the blood and parenchymatous organs for at least 10 days. The *Cl. perfringens* strains isolated from healthy and sick chickens were identical. They killed chick embryos, mice, guinea pigs, and chicks and produced disease in adult chickens. One may assume that *Cl. perfringens* of type A present in healthy chickens multiply and produce complications when the chickens become infected with diseases of the gastrointestinal tract, specifically

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RAKHMANNINA, I. A., et al., Veterinariya, No 6, Jun 73, pp 99-100

those of virus etiology. The strains isolated were sensitive to penicillin, erythromycin, and ampicillin. These antibiotics should be applied on an experimental basis at poultry farms in the case of infections complicated by *Cl. perfringens*.

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USSR

UDC: 621.372.852.1(088.8)

~~LYAYDANSKIY, S. Ye.~~, MASHARSKIY, Ye. I., KRAVCHENKO, A. T., Novosibirsk
Electrical Engineering Institute

"A Band Filter for Vacuum-Tube Amplifiers"

USSR Author's Certificate No 266098, filed 6 Jul 68, published 28 Jul 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D70 P)

Translation: A filter is proposed which consists of a plate circuit to which a load circuit is coupled. To reduce the size and extend the range of coupling control between circuits, the plate circuit is made in the form of a half-wave section of coaxial line loaded at one end by the output capacitance of the tube, and open at the other end, with increase in wave impedance on the quarter-wave section closest to the tube. The load circuit is made in the form of a quarter-wave section of coaxial line with shorting piston at the end. Coupling between the ends of the tank is regulated by moving the inner conductor of the load circuit along the common shield of the tank circuits.

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USSR

UDC 621.385.0

LYAVDANSKIY, S. Ye.

"Use of Miniature Metalceramic Microwave Tetrodes in Wide-Band Power Amplifiers"

Tr. Novosib. elektrotekhn. in-ta (Works of Novosibirsk Electrical Engineering Institute), 1970, No 2, Book I, pp 90-98 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A121)

Translation: At present, miniature metalceramic microwave tetrodes are being developed which have a very small transfer capacitance combined with disc or cylindrical lead outs of the electrodes, which assure insignificant parasitic inductivities, small input and output capacitances, a sufficiently high transductance, and a large cathode current. In connection with these, prospects are revealed for the use of such tetrodes with a grounded cathode in wide-band power amplifiers. An experimental test of an amplifier stage with a common cathode based on models [maket] of metalceramic tetrodes gave the following results (input and output circuit fulfilled based on strip lines). At a frequency of 220 MHz in a low signal regime, a 3300 MHz area of gain is obtained with a transmission band of $2 \Delta f = 16$ MHz, and with the same transmission band an 8-watt output power is obtained at a 19 db gain. At a 380 MHz frequency in a low signal regime a 1500 MHz area of gain is obtained with a transmission band of 50 MHz, and in a transmission band of 21 MHz, and 18-watt power with a 14.5 db gain and an efficiency of 45 percent. 3 ill. 2 ref. G.B.

Water Treatment

USSR

UDC 532.61

LYCHAGIN, N. I., and AKHTYAMOV, O. S., Nizhne-Tagil'sk Pedagogical Institute

"Surface Tension and Density of Magnetized Water"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1314-1315

Abstract: The surface tension and the density of water increase after magnetization. This change does not exceed 0.5%. Heat of evaporation increases after magnetization by about 0.3% under optimal conditions of magnetization. These changes are within the range of experimental error.

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USSR

LYCHAK. M. M.

"Stability and Dissipation of Control Systems Containing Unstable Nonlinearities"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1973, No 19, pp 83-93 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V225, by the author).

Translation: Nonlinear control systems are studied, containing unstable nonlinearities. The general theorems are proven, allowing the conditions of stability and dissipation of such systems to be determined for certain classes of nonlinearities in the form of frequency inequalities, placing limitations on the linear portion of the system, as well as mean-square estimation of dissipation. Based on these theorems, an analogue to the Popov frequency criterion is produced for unstable nonlinearities of one class. In concluding the frequency criterion, the generalized rule of integration by parts proven in this work is used.

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USSR

UDC: 621.398

ZHIVITSA, N. I., LYCHEV, V. N.

"A Device for Shaping a Group Signal in a Multichannel, Digital Data Transmission System"

USSR Author's Certificate No 314316, filed 6 Jan 70, published 4 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,
Jul 72, Abstract No 7A214 P)

Translation: A device is patented for shaping a group signal in a multi-channel digital data transmission system with time multiplexing. The device contains binary logic multipliers of informational and auxiliary signals represented by Rademacher functions. To provide for simultaneous transmission of several data signals with multiple keying speeds, the data signals are sent to the inputs of each following logic multiplier from the output of the preceding multiplier or from an external input, together with auxiliary binary signals of a frequency double that of the signal sent to the preceding multiplier. Two illustrations.

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USSR

UDC 576.851.49.097.21:576.851.49.094.1

LYCHEVA, T. A., Institute of Epidemiology and Microbiology imeni Gamaleya,
Academy of Medical Sciences USSR

"Relationship Between Virulence and Type of Colony in *Shigella flexneri* 2A
Hybrids With Certain Genetic Characteristics"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971,
pp 6-10

Abstract: Changes in the morphology of colonies were studied in recombinants obtained by crossing the virulent *Sh. flexneri* 2a 516 F⁻ strain with the following variations of donor strains: *E. coli* K-12 Hfr + AB 312 str^S, AB 312 (742) str^R, and AB 313 str^R. The keratoconjunctival test was used to assess virulence in the recombinants that were homogeneous with respect to morphology of colonies (e.g., degree of brightness, transparency, markings on the surface). The colonies of the recombinants were divided into three types according to structure of the surface and subdivided into bright and dull in each type. The keratoconjunctival test showed a connection between loss of virulence by the hybrids after receiving the xyl - str region from a streptomycin-resistant donor. This suggests that one of the genes of *Shigella* virulence is located near the xyl - str region and that *E. coli* has an allelic gene that is apparently blocked in streptomycin-resistant strains of *S. flexneri* and *E. coli*.

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1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE VIRULENCE OF SH. FLEXNERI HYBRIDS OBTAINED IN CROSSING WITH
VARIOUS STRAINS OF E. COLI K-12 HFR -U-
AUTHOR-(02)-PETROVSKAYA, V.G., LYCHEVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
PP 42-47
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, SHIGELLA, STREPTOMYCIN, ANTIBIOTIC
RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

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STEP NO--UR/0016/70/000/005/0042/0047

CIRC ACCESSION NO--AP0114501

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114501

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SUPPOSITION WAS PUT FORWARD AND DATA WERE PRESENTED POINTING TO THE PRESENCE OF ONE OF GENETIC LOCI ON THE CHROMOSOME OF SHIGELLAE NEAR THE STREPTOMYCIN ZONE; THIS WAS ONE OF THE LOCI RESPONSIBLE FOR THE CAPACITY OF SHIGELLAE TO INDUCE KERATOCONJUNCTIVITIS. A SUGGESTION BY S. FORMAL ET AL. (1965) ON THE EXISTENCE IN E. COLI OF ONE OF THE GENES NECESSARY FOR MANIFESTATION OF SHIGELLA VIRULENCE WAS CONFIRMED. IT WAS SHOWN THAT THIS ALLELIC HOMOLOGOUS GEN WAS BLOCKED IN E. COLI K-12 STRAINS RESISTANT TO STREPTOMYCIN. FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IM. GAMALET AMN SSSR, MOSCOW.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STATE OF THE SURFACE LAYER DURING ADSORPTION COMPLICATED BY A
CHEMICAL REACTION -U-
AUTHOR--(02)--LYCHKIN, I.P., AZARYAN, D.T. L
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 687-90
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ADSORPTION, CARBON DIOXIDE, ETHYLENEDIAMINE, CHEMICAL
REACTION, AMINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1635 STEP NO--UR/0080/70/043/003/0687/0690
CIRC ACCESSION NO--AP0125257
UNCLASSIFIED

2/2 018
CIRC ACCESSION NO--AP0125257

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABSORPTION OF SO_2 PRESENT IN AIR, BY AQ. SOLNS. OF ETHYLENEDIAMINE AND ETHANOLAMINE CAUSED DISTURBANCES OF THE SURFACE LAYER WHICH WERE TRANSFORMED INTO CONVECTIVE STREAMING INTO THE CENTER OF THE SOLN. A LINEAR RELATION EXISTS BETWEEN THE RELATIVE AMT. OF ADSORPTION ON THE PHASE BOUNDARY OF THE GAS SOLN. AND $1-\tau$, WHERE τ IS THE TIME OF APPEARANCE OF THE DISTURBANCES.

FACILITY: KASP. VYSSH. VOENNO-MORSK. KRASNOZNAMENNOE UCHILISHCHE IM. KIRCVA, USSR.

UNCLASSIFIED

USSR

UDC 621.791.793

SUSHCHUK-SLYUSARENKO, I. I., Candidate of Technical Sciences, SHABALIN, N. N., and ANDRIANOV, G. G., Engineers, and LYCHKO, I. I., Candidate of Technical Sciences, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Some Procedures for Increasing Electroslag Welding Productivity"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 74, pp 46-48

Abstract: To decrease thermal input (lowering superheating of drops and the molten metal bath) for electroslag welding a new method was proposed which involves, with continuous electrode feed, switching off the power to the consumable electrode periodically and using the accumulated heat in the bath to melt the additional material supplied during this period without any current. This new method yields the possibility of joining two plates without the danger of burn-through, and thinner plates can be used (40-50 mm minimum) as compared to conventional electroslag welding (100-150 mm). Also, the welding rate can be increased by 50% using the new method. Other merits of this new method are increased productivity, improved weld joint quality, and reduced overheating of the heat-affected zone. Three figures, five bibliographic references.

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Welding

USSR

UDC 621.791.793.011

SHEKERA, V. M., Engineer, MAKHNENKO, V. I., Doctor of Technological Sciences, and LYCHKO, I. I., Candidate of Technical Sciences, Electric Welding Institute imeni YE. O. Paton of the Academy of Sciences UkrSSR

"Stresses in Electroslog Surfacing of Cylindrical Objects"

Kiev, Avtomaticheskaya Svarka, No 1(250), Jan 74, pp 32-35

Abstract: The stresses arising in a steel cylinder during electroslog surfacing of the outer surface and when filling the inner hollow with Cu were investigated by an experimental-computation method based on a mathematical model of the process consisting of models of the temperature field and the deformation processes. The parameters of the model are regulated using the experimental data of temperature cycles in some characteristic points and of the residual elastic deformations on the inner or outer cylinder surfaces. The model of deformation processes is formulated as a problem of nonisothermal plastic flow for an ideal elasto-plastic medium satisfying Mises yield condition. The distribution of residual stresses in cylinder sections is discussed by reference to diagrams. In the surfaced metal the residual stresses can considerably exceed the yield limit of the material, and they depend to a great extent on the specific heat input. In case the physical properties of the sur-
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SHEKERA, V. M., et al., Avtomaticheskaya Svarka, No 1(250), Jan 74, pp 32-35

faced metal are close to properties of the base metal, the magnitude of the specific heat input can noticeably affect the residual stresses in electroslag surfacing of the outer cylinder surface. Five figures, one table, 11 formulas, three bibliographic references.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 016
TITLE--SOLID ROTOR -U-

AUTHOR--(05)-SCHASTLIVYY, G.G., SHEVCHENKO, V.I., LYCHKO, I.I.,
SUSHCHUKSLYUSARENKO, I.I., OBUKHOV, V.A.
COUNTRY OF INFO--USSR

SOURCE--USSR 248053
REFERENCE--OTKRYTIYA, IZJBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 23
DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PATENT, ELECTRIC MOTOR, ALTERNATING CURRENT, THERMAL
STABILITY, EDDY CURRENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/1593

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0121970

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AA0121970

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. SOLID ROTOR USED FOR AN A. C. ELECTRIC MOTOR ACHIEVES A HIGHER THERMAL STABILITY OF DAMPING SYSTEM DURING STARTING AND IN ASYMMETRICAL OPERATION. THE ROTOR DAMPING SYSTEM INCLUDES TEETH (1) AND METAL WEDGES (2) IN SLOTS (3). THE SHORTING RINGS (4,5) ARE MADE BY FORMING A LAYER OF ELECTRICALLY MOLTEN COPPER ON THE END OF THE ROTOR AND IN A RECESS OF THE SHAFT; THE ROTOR SLOTS ARE MILLED AFTERWARDS. WEDGES (2) ARE IN CONTACT WITH THE SHORTING RING ALONG ITS THICKNESS (A). IN ASYMMETRICAL OPERATION EDDY CURRENTS ARE INDUCED IN THE TEETH AND WEDGES WHICH ARE SHORTED BY THE RINGS (4,5).
FACILITY: INSTITUT ELEKTRODINAMIKI AN UKRAINSKOY SSR, INSTITUT ELEKTROSVARKI IM. YE. O. PATONA I LYS*VENSKIY TURBOGENERATORNIY ZAVOD.

UNCLASSIFIED

USSR

UDC 621.791.793

VOLOSHKEVICH, G. Z., SUSHCHUK-SLYUSARENKO, I. I., LYCHKO, I. I., KHRUNDZHE, N. M., Institute of Electric Welding im. Ye. O. Paton AN UkrSSR

"Some Means for Improvement of Electroslag Welding"

Kiev, Avtomaticheskaya Svarka, No 12, 1972, pp 5-9

Abstract: Characteristics of the electroslag welding method are discussed. The prospects for future development of the electroslag welding method are noted. The method is particularly promising for welding of extremely thick metal structures, although the welding rate is generally rather low for thick structures (less than 1 m/hr). Areas for further research are suggested, including: investigation of the properties of the seam zone in steels welded by the method; creation of new types of steels not requiring high-temperature heat treatment after electroslag welding; search for technological means of improving the structure of the seam zone after welding and tempering; development of means for improvement of the mechanical properties of seam metal after welding and tempering by changing the chemical composition; creation of effective methods of local and surface high-temperature heat treatment; development of measures for conservation of the shape of products with general high-temperature heat treatment; improvement of impact testing methods; and 1/2

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VOLOSHKEVICH, G. Z., et al., Avtomaticheskaya Svarka, No 12, 1972, pp 5-9

determination of the necessary areas for the application of high-temperature heat treatment by classification of products as to composition, usage temperature, nature of loading, presence of stress concentrators, etc.

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USSR

UDC:536.468

GUREVICH, M. A., LYDKIN, V. M., STEPANOV, A. M., Leningrad

"Ignition and Combustion of a Gas Suspension of Magnesium Particles"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 335-342

Abstract: The problem of ignition and combustion of a polyfractional gas suspension of magnesium particles is studied. The temperature and composition of the gas medium, as well as the concentration of particles of the same size are assumed identical throughout the entire volume of the gas suspension. The composition of the gas at each moment in time is considered to remain at the chemical equilibrium point, while the partial pressure of the gaseous oxide is equal to the saturated vapor pressure. The temperature of the condensed oxide is assumed equal to the temperature of the gas. Radiative heat exchange and heat and mass transfer with the external medium are not considered. Several versions of combustion of suspended magnesium particles in air are calculated. In all cases the initial distribution of particle masses by dimensions is considered linear. Results of the versions of calculation are presented.

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1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CAUSATIVE AGENTS OF DERMATOMYCOSES IN THE KHMELNITSKY REGION -U-
AUTHOR--LYEVLEV, S.A.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 3, PP 51-52
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FUNGUS DISEASE, MEDICAL GEOGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/0693 STEP NO--UR/0206/70/000/003/0051/0052
CIRC ACCESSION NO--AP0102677
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102677

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CULTURAL DIAGNOSIS FOR 298 PATIENTS OF THE MYCOLOGICAL WARD AND EPIDEMIOLOGICAL ANALYSIS OF THESE DISEASES ESTABLISHED THAT THE CAUSATIVE AGENTS OF DERMATOMYCOSES CIRCULATING IN THE REGION INCLUDE: TRICHOPHYTON GYPSEUM (95.72PERCENT), T. FAVIFORMIS (4.36PERCENT), T. VIOLACEUM (2.32PERCENT), T. CRALERIFORME (1.98), ACHORION SCHOLENLEINI (1.32PERCENT). FROM OTHER REGIONS WERE INTRODUCED: MICROSPORUM LANOSUM (1.98PERCENT), MICROSPORUM FERRUGINEUM (1.00PERCENT), EPIDERMOPHYTON INGUINALIS (0.33PERCENT), TRICHOPHYTON RUBRUM (0.33PERCENT). INVESTIGATION OF THE SPECIES COMPOSITION OF THE CAUSATIVE AGENTS OF DERMATOMYCOSES IN A DEFINITE AREA AND CONSIDERATION OF EPIDEMIOLOGICAL FEATURES OF INDIVIDUAL NOSOLOGICAL FORMS IS VERY IMPORTANT IN CONTROL OF INCIDENCE OF DERMATOMYCOSES.

UNCLASSIFIED

USSR

UDC: 681.325.5

TIMOFEYEV, B. B., SUKHOMLINOV, M. M., FERENETS, N. K., STEPKO, D. P.,
NIKITENKO, V. M., OVERKO, V. A., PRSHISOVSKAYA, T. A., LYFAR', I. N.

"A Specialized Digital Computer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 47, Dec 73, Author's Certificate No 408304, Division G, filed 23 Jun 70,
published 10 Dec 73, p 172

Translation: This Author's Certificate introduces a specialized digital computer which contains registers, counters, and a control module connected to the registers and to the overflow outputs of the counters. The device also contains adders, flip-flops, an auxiliary code formation module, coincidence gates, buffer circuits, and a cadence pulse circuit connected to the input of a circuit for obtaining digit potentials. The outputs of this circuit are connected to the inputs of the control module. As a distinguishing feature of the patent, the functional possibilities of the computer are extended by adding a circuit for isolating transition signals, a transition counter, and three auxiliary registers. The output of the transition counter is connected to the first input of the first adder,

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TIMOFEYEV, B. B., et al., USSR Author's Certificate No 408304

whose output is connected to the input of the transition counter. The output of the first auxiliary register is connected to its input through the first coincidence gate, while the outputs of the second and third registers are connected through the second and third coincidence gates to the first inputs of the second and third registers whose outputs are connected to the inputs of the second and third registers respectively. The output of the second adder is connected through the fourth coincidence gate to the first input of the first buffer circuit. The second input of this buffer circuit is connected to the output of the first register, and the output of the buffer circuit is connected to the first input of the circuit for isolating transition signals. The second input of this circuit is connected to the output of the transition counter and, through the fifth and sixth coincidence gates, to the first inputs of the second and third buffer circuits. The outputs of these buffer circuits are connected to the second and third inputs, whose outputs are connected to the second inputs of the second and third adders respectively. The output of the circuit for isolating transition signals is connected through the seventh and eighth coincidence gates to the second inputs of the second and third buffer circuits respectively and, through the ninth coincidence gate,

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TIMOFEYEV, B. B., et al., USSR Author's Certificate No 408304

to the input of the auxiliary code formation module whose output is connected to the third input of the second buffer circuit. The output of the third register is connected through the tenth coincidence gate to the set input of the flip-flop whose output is connected through the eleventh coincidence gate to the second input of the first adder.

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UDC 547.574.4+546.183+547.821

USSR

LYGOVKIN, B. P., All-Union Scientific Research Institute of Work Safety, Kazan'

"Synthesis of Esters of Nitrobenzyl(aminomethylpyridyl)phosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, pp 2181 -2183

Abstract: Meta- and para-nitrobenzylidenemethylpyridines (I-V) were synthesized from a mixture of nitrobenzaldehyde and 2-aminomethylpyridine taken in equimolecular amounts and heated for 2 hr (I-III) and 1.5 hr (IV-V) on water bath. Crystallized nitroazomethynes (IV-V) were recrystallized from ethanol (4-5 ml.). All five compounds were in a form of weakly yellow crystals, soluble in organic solvents, and insoluble in water. Three meta-compounds (I-III) with the empirical formula $C_{13}N_{11}O_2$ had b.p. 99-100°, 131-132°, and 130-131° C

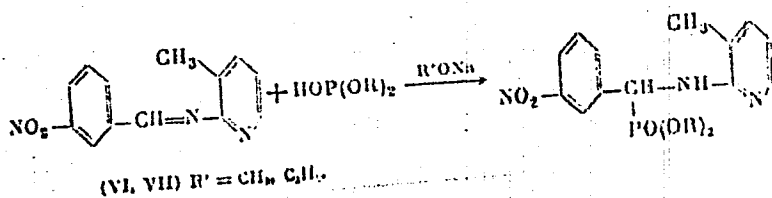
for methyl groups at 3rd, 4th, and 5th positions, respectively. Two para-compounds (IV-V) with the same empirical formula had methyl groups at 4th and 5th positions and their b.p. was 153-154° and 156-157° C, respectively. Dialkyl nitrobenzyl(aminomethylpyridyl)phosphonates (VI-XIV) were synthesized from a mixture of nitroazomethyne and dialkyl phosphite in the presence of anhydrous alcoholic solutions, of Na alkoxide. The reaction mixture was heated at 1/2

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USSR

LUGOVKIN, B. P., Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, pp 21-81-2183

85-90°C for 5 min. The obtained clear viscous liquid was dissolved in ethanol, evaporated, and recrystallized from benzene. The empirical formulas of 5 meta- and 4 para-compounds are $C_{15}H_{18}N_2O_5P$ and $C_{17}H_{22}N_2O_5P$ and their b.p. varied from 113 to 149°C.



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USSR

UDC 669.18:512.5

MEDZHIBOZHSKIY, M. Ya., Doctor of Technical Sciences, KUZNETSOV, A. F.,
LYKIN, A. A., and RUDAKOV, G. A., Candidates of Technical Sciences

"Effect on Liquid Steel Output of Certain Parameters of Oxygen Blowing Into a
High-Capacity Martin Furnace Bath"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-
Oct 70, pp 10-12

Abstract: A study was made of the effect of certain parameters of oxygen blowing into a steel bath (blowing rate, oxygen concentration in the blowing-through mixture, melting time, total expenditure of oxidizers, etc.) The oxygen blowing rate substantially affects the liquid metal output, so that there is an increase in metal losses in the form of oxides and regulus in the slag and as dust in the combustion products. The relationship between the blowing intensity and metal losses is expressed by a formula established from data on more than 300 melts. It follows from this formula that every 1000 m³/hr increase in blowing rate reduces the liquid metal output by 1.2%. This may be compensated by reducing the melting time and oxygen concentration in the blowing-through mixture.

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USSR

MEDZHIBOZHSKIY, M. Ya., et al, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 10-12

A reduction in oxygen concentration from 95 to 65% at a 3000 m³/hr average blowing rate increased the liquid steel output by 1.7%. Figures show the dependence of liquid steel output on oxygen purity, melting time, specific oxygen flow rate and total expenditure of oxides. A table shows results of a series of experimental meltings conducted with the purpose of determining the metal losses in the form of dust and slag particles.

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Heat, Combustion, Detonation

USSR

UDC 526.248

LYKOV, A. V., and VASIL'YEV, L. L.

"Heat and Mass Transfer of Capillary Porous Bodies by Their Blowing Out by a Rarefied Gas Flow"

Minsk, Teplo i Massoobmen pri Nizkikh Temperaturakh, 1970, pp 5—24

Abstract : Heat and mass transfer processes were experimentally investigated by water evaporation from capillary porous bodies in a subsonic rarefied gas flow. The experiments were carried out on an illustrated vacuum installation permitting changes of temperature (300—400 °K), statical pressure (10^2 — 10^5 N/m²), and gas flow rates (3—10 m/sec). The investigated body was 45 mm thick and consisted of a 3mm thick porous plate with filling of glas or Plexiglas little balls. The experimental results are discussed by reference to diagrams showing temperature fields

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USSR

LYKOV, A. V. and VASIL'YEV, L. L., Teplo i Massoobmen pri Nizkikh Temperaturakh, 1970, pp 5-24

in the boundary layer and the porous body and comparative tabulated data of heat transfer coefficients and mass flows getting into the boundary layer. It was found that under non-adiabatic evaporation conditions of the liquid, a vapor condensation in the boundary layer and, in a number of cases, also an intensification of the heat transfer process can take place. Five illustr., 20 formulas, two tables, five biblio. refs.

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UDC 533.31.532.542

USSR

LYKOV, A. V., KOLESNIKOV, P. M., and MARTYSENKO, O. G.

"Wave Description of Aerothermooptics"

Minsk, Energoperenos v Kanalah (Energy Transport in Channels) Science and Technology Press, 1970, pp 3-38

Abstract: The article studies the physical characteristics for the focusing and defocusing of laser and light rays using thermal gas lenses. Basic equations for wave thermooptics are given for the fields and the potentials by allowing for the heat fields in them. Two conditions are examined for heating a stationary flow of gas in a cylindrical tube and their optical characteristics. The first is that of a stationary flow in a tube at constant wall temperature, wherein it is found that due to the radial change in density the refractive index of the flow is increased toward the axis of the tube, and consequently the radiational variation in the temperature field in such a tube will result in focusing of the light rays. The second condition is that of a stationary gas flow in a cylindrical tube at a constant density of the heat flux on the wall. In cross section the various temperature profiles are similar and, with an increase in length, the gas temperature increases linearly. Therefore, it is found to be sufficient to represent the temperature variation

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LYKOV, A. V., et al, Energoperenos v Kanalakh Science and Technology Press, 1970, pp 3-38

for the radius and the length. Thus, the flow conditions in the tube with $q_c = \text{const}$ will result in the transverse temperature distribution's having a focusing effect on the ray. Solutions are found to the wave equations by using various methods, including those of parabolic equations, perturbations, geometric optics, and other approximation and asymptotic methods. The properties of a light conductor with gas lenses are studied, the theory of light conductors with these lenses being a specific case of the theory of open lines. Here two approaches are possible for constructing the theory, one on the basis of the Helmholtz equation and the other on the basis of the parabolic equation, both of which are given in the article [equations (2.17) and (3.5), respectively]. The symbols used throughout the article are defined at the end, and 73 bibliographic references are cited.

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1/2 052 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EXPERIMENTAL STUDY OF NON STATIONARY HEAT TRANSFER BETWEEN METAL
SPHERES AND A FLOW OF LIQUID AT CONSTANT TEMPERATURE -U-
AUTHOR--(03)--LYKOV, A.V., SMOLSKY, D.M., SERGEYEVA, L.A.
COUNTRY OF INFO--USSR
SOURCE--INZH. FIZ. ZHUR., JAN. 1970, 18, (1), 12-10
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HEAT TRANSFER COEFFICIENT, SPHERIC SHELL STRUCTURE, ALUMINUM,
BRASS, COPPER, LEAD, THERMAL CONDUCTIVITY, FLUID FLOW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/0378 STEP NO--UR/0170/70/000/018/0012/0020
CIRC ACCESSION NO--AP0111571
UNCLASSIFIED

2/2 052

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111571
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE UNDERLYING THEORETICAL PRINCIPLES OF A METHOD OF DETERMINING THE COEFF. OF NON STATIONARY HEAT TRANSFER BETWEEN SPHERICAL METAL SAMPLES AND A FLOW OF WATER OR OTHER LIQUID AT CONSTANT TEMP. ARE EXPLAINED AND SOME EXPERIMENTAL RESULTS OBTAINED FOR AL, CU, PB, AND BRASS SPHERES ARE PRESENTED. THE NON STATIONARY HEAT TRANSFER COEFF. VARIES CONSIDERABLY WITH TIME, IN ADDITION TO BEING A FUNCTION OF THE THERMO PHYSICAL PARAMETERS OF THE SAMPLE METAL. SOME GENERALIZED CURVES REPRESENTING THESE RELATIONSHIPS ARE PRESENTED.

UNCLASSIFIED

UDC: 550.83:551:24(476+477)

USSR

KUREANOV, M., LYKOV, V. I., Institute of Physics of the Earth and Atmosphere,
Academy of Sciences, Turkmen SSR

"Association of the Contemporary Tectonic Movements and Seismicity in the
South of Turkmenia With Particularities in the Structure of the Earth's
Crust"

Ashkhabad, Izvestiya Akademii Nauk Turkmeniskoy SSR, Seriya Fiziko-Tekhnicheskikh,
Fizicheskikh Nauk, No 1, 1972, pp 32-37

Abstract: The results of an integrated analysis of geophysical, geodetic, and
seismological data provide a basis for indicating the continuing formation of
first-order structures on the territory of the Turkmen SSR. An active ring-
shaped zone of the Transk type is noted; this zone separates the South-Caspian
intraeosphynclinal megadepression with a suboceanic profile of the earth's
crust from regions with a continental crust. Contours of zones of extension,
formed at the intersection of systems of regional destruction with great dis-
continuity as a result of non-unidirectional horizontal shifts, are character-
ized by a high level of seismic activity. Contemporary vertical movements of
the earth surface in the territory of the south of Turkmenia are a result of
the tectonic life of an enormous region of Southwest Asia. For studying the
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USSR

KURBANOV, M., LYKOV, V. I., Izvestiya Akademii Nauk Turkmensoy SSR. Seriya Fiziko-Tekhnicheskikh, Fizicheskikh Nauk, No. 1, 1972, pp 32-37

seismic regime and for ascertaining the causes of contemporary tectonic activity, it is necessary to conduct stationary complex geophysical and geodetic observations, not only in the seismically active regions of Ashkhabad and Neybitdag, but also in the zones of jointing of Kapatdag with the folded system of Aladag-Binalud and the West-Turkmen depression. 2 figures. 13 references.

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USSR

UDC 532:534

KONOVALOV, Ye. G., Academician of the BSSR, LYKOV, Ye. V., Physicotechnical
Institute of the Academy of Sciences of the BSSR, Krasnodar Polytechnical
Institute

"Acoustic Crisis in Boiling of Liquids"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 9, Sep 72, pp 787-790

Abstract: An acoustic crisis is observed in boiling of liquids which consists in the following effect. As the specific heat flux which produces the boiling is increased, the noise accompanying boiling attains an abrupt maximum of integral acoustic pressure with a simultaneous qualitative change in the acoustic spectrum of the noise in the form of the appearance of a maximum frequency and an abrupt increase in the amplitude of the other high-frequency components of the spectrum. The acoustic crisis in boiling always shows up at a specific heat influx less than a certain critical heat flux accompanying bubbling boiling.

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USSR

MITROPOL'SKIY, Academician of the Ukrainian Academy of Sciences Yu. A.;
LYKOVA, O. B.; BOGATYREV, B. M. (Mathematics Institute, Ukr. Academy of Sciences)

"Method of Rapid Convergence in the Problem of Construction of a Lyapunov Function"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky; August, 1972; pp 702-6

ABSTRACT: A method is suggested for the construction of a Lyapunov function $V(\phi, x)$ of a weakly nonautonomous linear system of equations

$$\frac{dx}{dt} Ax + P(\phi)x, \frac{d\phi}{dt} = \omega,$$

with the assumption that $\|P(\phi)\|$ is small and $P(\phi)$ is a fairly smooth function of ϕ representable by ϕ in the form of a Fourier series.

The proposed method is based on the Krylov-Bogolyubov idea of successive substitution of variables, ensuring rapid convergence.

1/1 The article includes 27 equations. There are 9 references.

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USSR

MITROPOL'SKIY, Yu. A., Academician of the Ukrainian Academy of Sciences; and
LYKOVA, O. B., (Institute of Mathematics, Ukrainian Academy of Sciences)

"Stability of Solutions of Nonlinear Differential Equations in Banach
Space"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR: Seriya A - Fizyko-Tekhnichni
ta Matematychni Nauky, May 1971, pp 409-413

Abstract: The method of integral manifolds is applied to a study of the
stability of solutions of nonlinear differential equations in an infinite-
dimensional Banach space for critical cases. The author proves the follow-
ing theorem, by means of which it is possible to study the stability of
solutions of the equation

$$\frac{dx}{dt} = Ax + X(t, x, \epsilon); \quad (1)$$

where A is a linear bounded operator; $X(t, x, \epsilon)$ is a function of the real
variable t, x, the values of which belong to the space L ; ϵ is a small
parameter.

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USSR

MITROPOL'SKIY, Yu. A., and LYKOVA, O. B., Dopovidi Akademii Nauk Ukrain's'koï RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky; May 1971, pp 409-413

THEOREM: The differential equations

$$\frac{d\bar{\xi}}{dt} = A_1 \bar{\xi} + X_1(t, \bar{\xi}, s, \varepsilon), \quad (2)$$

$$\frac{ds}{dt} = A_2 s + X_2(t, \bar{\xi}, s, \varepsilon),$$

$$\frac{d\bar{\xi}}{dt} = A_1 \bar{\xi} + \bar{X}_1(t, \bar{\xi}, 0, \varepsilon) \quad (3)$$

are given. Suppose the functions in the right side of equations (2) and (3) have certain properties such that the spectrum of the operator A_1 is critical and, with the operator A_2 , does not intersect the imaginary axis but is located to the left of it. Then the stability of the position of

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MITROPOL'SKIY, Yu. A., and LYKOVA, O. B., Dopovidi Akademii Nauk Ukrain's'koï RSR: Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky; May 1971, pp 409-413

the equality $\xi = 0$, $s = 0$ of equations (2) is completely determined by the stability of the position of the equality $\xi = 0$ of equation (3).

The critical part of the spectrum for the operator A of equation (1) leads to a study of the stability of solutions of the equation with respect to the critical variable, whose degree is less than the degree of the original equation and in a number of cases can be finite.

There are five bibliographic references.

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USSR

UDC 77

LYLIKOV, K. S., YAROSLAVSKAYA, N. N., GOVORKOV, L. P.

"Certain Features of the Stabilization of Ammonialess High-Dispersion Emulsions"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14,
pp 97-103 (from RZh-Fizika, No 12(I), Dec '70, Abstract No 12D1328)

Translation: In the development of especially high dispersion, homogeneous ammonialess emulsions of the EVR-1000 type ($d = 0.03 \mu$), there arose the question of its stabilization. A basic difficulty in the stabilization of such an emulsion is in preventing the recrystallization of the emulsion and the appearance of bidispersion of microcrystals associated with it. In the absence of sta-salt the most considerable concentration of bromide ($pBr = 6.4$) in thermostatically controlled aging of the emulsion was sufficient for the rise of bidispersion, and its rise was accompanied by a sharp change in the photographic properties (a drop in gamma and a rise in light sensitivity). The introduction of $2.61 \cdot 10^{-5}$ mole of sta-salt per liter of emulsion fully stopped recrystallization even for a considerable concentration of bromide. The concentration of bromide that is

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LYLIKOV, K. S., et al, Uspekhi nauchn. fotogr., 1970, vol. 14, pp 97-105

optimal from the aspect of maintaining photographic properties for the indicated concentration of sta-salt is $2 \cdot 10^{-3}$ mole/l, with a final value of 3.8-4.0 for the pBr of the emulsion values apply to the panchromatically sensitized variety of the emulsion investigated. As concerns the latter, also investigated was the stabilizing effect of antioxydants pyrocatechin, α -naphthol, which gave doubly negative results, however. Authors abstract.

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USSR

UDC 632.4:633.881

LYMAN, V. Ye., and DROZDOVSKAYA, L. S., All Union Scientific Research
Institute of Medicinal Plants

"Feasibility of the Utilization of Chemical Agents Against Adonis Smut"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 3, 1972, pp 42-44

Abstract: Several approaches were studied to prevent infection of adonis with smut. The most effective method to control smut consists of preplanting treatment of the seeds with TMTD or agronal using 5 g/kg concentration, treatment of the root stalks prior to planting for 3-5 min with a 1% suspension of agronal or 2% suspension of TMTD, or a double spraying of the plants with a 2% suspension of TMTD or 0.5% suspension of cyran: the first treatment during the period of massive sprouting of the adonis, followed by another treatment a week later. The consumption of the liquid should be 600 l/hectare.

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LYMAR, G.F.

SO: JPRS 53279
14 JUL 82/73

ALLOWING EPITAXIAL LAYERS OF SILICON WITH BROWN AND AMBERY TINTS AND DISCREPANT
FACTORS BY A. M. Belyaev, G. P. Ivanov, V. V. Shklyarskiy, L. M. Kozlovskiy,
Novosibirsk, Institute of Physics, Siberian Branch of the Academy of Sciences of the USSR,
Novosibirsk -- Izvestiya Akademii Nauk SSSR, Seriya Fiziko-Matematicheskie Nauki,
1982, No. 1, pp. 11-15.

The problem of controlled alloying of epitaxial films by semiconductor
materials during growth time is one of the most important in epitaxial tech-
nology.

The recently published [1] method of alloying silicon epitaxial layers
by creating a spark discharge in hydrogen at $SiCl_4$ between electrodes control-
ling the required substrate is extremely interesting inasmuch as the process
controlled by the electrical methods are, as a rule, flexible and easily ad-
justed. In addition, with corresponding selection of the electrodes and the
gas media, it can be used for epitaxial growth not only of silicon but also a
number of other semiconducting materials.

In view of the present practical importance of epitaxial technology
for manufacturing the silicon transistors, this alloying method was investi-
gated in the example of silicon epitaxy. The growth was carried out by the
method of reducing silicon tetrachloride with hydrogen in high-frequency dis-
charges with a vertical reactor (Figure 1).

Experiment

A study was made of the alloying of the donor (arsenic) and acceptor
(boron) impurities.

In contrast to reference [1] where the pulse generator was used, the
feed to the discharge came from a high-voltage DC source. The electrodes
were rods made of pure arsenic or lanthanum boride. In all the alloying ex-
periments, the mole ratio of $SiCl_4/H_2$ was 0.01, the growth temperature was
1220°C, the total hydrogen flow rate through the reactor was 100 liters/hour.
The gas distribution system had three main lines: 1 -- the basic hydrogen
flow line, 2 -- the $SiCl_4$ saturation line, and 3 -- the alloying line. For
all the manipulations with flow rates, the total flow rates through lines 1
and 3 remained constant.

LYMAR, G. F.

Sci JPRS 54299
14 June 73

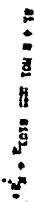
STUDIES OF THE TRANSPORT OF CERTAIN DONOR AND ACCEPTOR ANALYTES FOR LITHI-
AL GROWN BY THE SANDWICH METHOD

Article by B. G. Anshkin, L. M. Zhurkova, G. F. Lyman, A. N. Melnikova, N. N. Sidorova, P. I. Stukhina, and V. I. Zolotareva. Journal of Applied Physics, Part 2, 1973, pp. 95-101.

The sandwich method of growing epitaxial layers of semiconductors based on the transport of the material through its volatile compounds by a reversible heterogeneous reaction between the heat source and substrate in the presence of a temperature gradient is simple and convenient for laboratory practice. The possibility of obtaining Si layers with appreciably higher specific resistance than in the open chloride process with the same requirements on the purity of the initial reagents, the possibility of alloying (when selecting the corresponding transport agents) with such admixtures of elements of groups III and V the working with the halides of which in the flow system is complicated, the possibility of working with highly alloyed sources without contaminating the reactor and the gas matrix — all of these justify the interest in the sandwich method.

In order to obtain epitaxial layers of Si with given electrical parameters by the sandwich method it is necessary to know in detail the transport coefficients of the alloying admixtures for specific process conditions (type of carrier, growth rate, impurity concentration in the source, and so on). In the literature [1, 2].

The purpose of this paper was to determine the transport coefficients K_{eff} — G_{Si}/C_{Si} source (the concentration ratio of the admixture in the epitaxial layer and the source) of certain donor and acceptor admixtures P, As, Sb, Bi, In, Ga, Al) and their dependence on the transport conditions when transporting silicon through the volatile dichloride $SiCl_2$ by the reversible reaction



LYMAR; G.F.

SPRS 59208
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VII-3. STUDY OF STRUCTURAL DEFECTS IN EPITAXIAL FILMS OF GALLIUM ARSENIDE
[Article by G. F. Lyman', Ye. N. Dorokova, G. A. Alexandrova, Moscow;
Novosibirsk. III Symposium on Progresses in Physics of Semiconductors
Kretschmer & Plesch, Munich, 12-17 June, 1972, p. 89]

The methods of chemical and ion etching, raster electron microscopy,
x-ray topography and microanalysis were used to investigate the structural
defects in the substrates and the epitaxial films of gallium arsenide. The
epitaxial film was grown from the vapor phase by the epitaxial process.

The studies demonstrated that in substrates of semiconducting gallium
arsenide strongly alloyed with tellurium, in addition to the high dislocation
density ($\sim 10^6-10^5 \text{ cm}^{-2}$), there is significant density of the separations of the
second phase ($\sim 10^4-10^3 \text{ cm}^{-2}$). The defect density in the epitaxial layers is
1-2 orders lower than in the substrates. The heat treatment of the substrates
and the epitaxial films in arsenic vapor at 720°C leads to significant vari-
ation of the etching patterns, especially on the epitaxial layers.

The experimental data are discussed.

USSR

UDC 621.791.1:621.57

KHRENOV, K. K., CHUDAKOV, V. A., KOZOLUP, P. M., LYMAR, P. I.,
and SKLYAR, I. D.

"Magnetic Impulse Welding of Domestic Refrigerator Tubes"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 74-75

Abstract: A brief description is given of technology for the magnetic-impulse welding of copper and aluminum tubes 6 and 8 mm in diameter, respectively. The technology was developed jointly by the Institute of Electric Welding imeni Ye. O. Paton and the Dnepropetrovsk Plant for Radio Relay Devices (DZARP). A copper tube is introduced inside the aluminum tube with a certain clearance. In order to retain the inside diameter of the copper tube a 30KhGS steel rod is inserted inside it, and is removed after welding by a special device. The welding is achieved by an inductor, supplied by an 80-microfarad capacitor bank with a voltage of 20 kv and capacity of 16 kilojoule. The energy required for welding is 4.4-6.5 kilojoule and is determined by the inductor parameters. The current is about 165-200 kilo amperes. The inductor coils are water cooled.

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USSR

UDC 539.3

TYARNO, YU. A., LAYDRA, P. O. and LYME, YA. N.

"Experimental Investigations of Double-Curvature Slanting Shells with Supported Edge Elements"

Tallin, Tr. Tallin. politekhn, in-ta (Transactions of the Tallin Polytechnic Institute), No 333, 1972, pp 57-66 (English abstract) (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4V233)

Translation: Slanting shells of positive Gaussian curvature with sides at right angles are considered. The longitudinal edge elements of the shell were supported during the experiment. The experimental investigations were conducted on a series of models (120x60cm) of a reinforced cement solution 1:25. Stress-strain curves of internal forces, transport values and schemes of crack formation are presented. The collapse of all models was a result of the formation of a plastic articulation of positive bending moments at the edge element with a load greater than 1400-1800 kg/m². (Author's abstract)

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USSR

UDC 621.791:061.3:669.2/.8

LYOGKO, I. I., and KAMALYAN, G. M., Candidates of Technical Sciences

"Inter-Republic Conference on the Technological Features of Welding Nonferrous Metals and Alloys"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 71, p 58

Abstract: The Conference on the Technological Features of Welding Nonferrous Metals and Alloys was held on 22-24 October 1970 in the Yerevan Republic Hall of Technology. The conference was sponsored by the Armenian Administration of NTO MASHFROM, The Republic Hall of Technology, the Yerevan Polytechnical Institute, and the Institute of Electric Welding imeni YE. O. Paton. Some 100 persons attended the conference, in which 25 papers were given.

The conference was opened by Deputy Director of the Armenian Administration of NTO MASHFROM, Candidate of Technical Sciences N. V. Manukyan, who noted the broad application of various methods of welding nonferrous metals and alloys in the Republic.

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USSR

LYCHKO, I. I., and KAMALYAN, G. M., Svarochnoye Proizvodstvo, No 3, Mar 71, p 58

Doctor of Technical Sciences D. M. Rabkin (Institute of Electric Welding imeni YE. I. Paton), in an introductory speech, told about achievements in the field of welding nonferrous metals and the further development of welding technology.

A report by Doctor of Technical Sciences S. M. Gurevich and Engineers V. M. Ilyushenko and L. K. Bosak (Institute of Electric Welding imeni YE. O. Paton) discussed the features of submerged-arc welding of thick-sheet copper and chromium bronze. Experience in the production of copper and copper-alloy weldments was discussed by Candidate of Technical Sciences I. I. Dzhevag (Nikolayev Shipbuilding Institute).

The problems of developing and studying electroslog welding of large cross-sections of copper were reviewed in a report by Candidates of Technical Sciences I. I. Lychko, and I. I. Sushchuk-Slyusarenko and Engineers V. M. Ilyushenko and A. P. Alekseyenko (Institute of Electric Welding imeni YE. O. Paton).

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LYCHKO, I. I., and KAMALYAN, G. M., Svarochnoye Proizvodstvo, No 3, Mar 71, p 58

Engineer V. YA. Gluchko and Candidate of Technical Sciences YU. I. Rubenchik (All-Union Scientific Research Institute for Commercial Transportation of Chemical and Petroleum Equipment, Volgograd) reported on the metallurgical and technological features of welding copper with an unshielded arc. A report on the weldability of copper produced by the Alavardsk Copper-Chemical Combine was given by Engineer V. N. Kitayev.

Reports by Doctor of Technical Sciences D. M. Rabkin, Candidate of Technical Sciences N. M. Voropdy and A. I. Korniyenko, and Engineer A. A. Bondarev discussed new process of welding light metals and alloys by electron beam, plasma, and asymmetrical a-c current and the technology of preparing the surface of aluminum alloys where there is a long time interval between preparation and welding. Engineers A. D. Korneyev and V. YA. Zusin (Zhdanov Metallurgical Institute) discussed some problems in the submerged-arc welding of aluminum alloys under a layer of ceramic flux. Candidate of Technical Sciences R. S. Karamyan reported on 3/8

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LYCHKO, I. I., and KAMALYAN, G. M., Svarochenoye Proizvodstvo, No 3, Mar 71, p 58

the features of high-pressure shielded arc welding with a consumable electrode.

Doctor of Technical Sciences A. A. Alov and Engineers YU. A. Filatov and L. A. Lovchenko (VILS, Moscow) presented a paper on the theme "Effect of Metallurgical Heredity of Alloy AMg6 Semi-Finished Products on Their Thermal Weldability."

Candidates of Technical Sciences N. M. Voropay and V. S. Gvozdetskiy and Engineer V. V. Shcherbak (Institute of Electric Welding imeni YE. O. Paton) reported on recent developments, studies, methods, equipment, and technology for microplasma welding of nonferrous alloys. In the report of Candidate of Technical Sciences A. M. Boldyrev and Engineers V. G. Antonov and E. V. Dorofeyev (Voronezh Polytechnical Institute) the effect of a magnetic field on weld bath crystallization in the welding of magnesium alloys was examined. V.I. Alekseyenko and Engineer G. G. Psaras (Zhdanov Heavy Machine Building Plant) discussed the

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USSR

LYCHKO, I. I., and KAMALYAN, G. M., Svarochenoye Proizvodstvo, No 3, Mar 71, p 58

welding of aluminum and its alloys in argon and oxygen with a consumable electrode. The reports "Bathless Electric Arc Hard Surfacing of Nonferrous Metals and Alloys" and "Features of Electrode Metal Transfer in Large-Panel Proportioned Hard Surfacing on Contacts" were presented by Engineer V. A. Fursov, Candidate of Technical Sciences M. S. Samotryasov (Kiev Polytechnical Institute), and Engineer I. M. Ysekhmister.

Candidate of Technical Sciences YE. I. Stargay (VNII-kriogenmash, Moscow) described studies of electrochemical behavior of AMts alloy during brazing salts melts and dehydration of salt melts in the brazing of aluminum alloys.

Problems of thermodynamics and kinetics of the mechanism of joint formation in the welding of metals in the solid phase were examined in the report of Doctor of Technical Sciences M. KH. Shorshorov, Candidates of Technical Sciences E. S. Kara-
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USSR

LYCHKO, I. I., and KAMALYAN, G. M., Svarochenoye Proisvodtstvo, No 3, Mar 71, p 58

kozov and V. A. Petrosyan, and Engineer L. V. Afrikyan (Institute of Metallurgy imeni A. A. Baykov). Results of investigations on the activation of metal surfaces by cathode diffusion in the welding arc were the theme of a report by Engineer V. A. Fursov (Kiev Polytechnical Institute) and Candidate of Technical Sciences N. M. Voropay.

Candidate of Technical Sciences G. M. Kamalyan and Engineer R. V. Ter-Grigoryan (Yerevan Compressor Plant) reported on studies of the effect of technological parameters on the productivity of the plasma surfacing process for nickel alloys and features of their application with the use of a compressed arc. The report of M. Z. Lokshin, A. P. Sirotovakaya, and L. P. Alekhin was devoted to an investigation of the parameters for radio-frequency welding of aluminum tubes.

6/8 Problems of stress and strain in the welding of nonferrous
- 10 -

USSR

LYCHKO, I. I., and KAMALYAN, G. M., Svarochenoye Proisvodstvo, No 3, Mar 71, p 58

metals and alloys were the theme of the report by Candidates of Technical Sciences A. YA. Nedoseka and A. A. Kazimirov (Institute of Electric Welding imeni YE. O. Paton).

The report of Doctor of Technical Sciences D. M. Rabkin and Candidate of Engineering Sciences V. R. Ryabov (Institute of Electric Welding imeni YE. O. Paton) was devoted to the welding of different combinations of metals, the properties of composite joints, and the results of introducing dissimilar metal weldments into industry. Engineer V. A. Dertsakyan (Armenian Electrical Plant, Yerevan) discussed the nature of physical-chemical phenomena in copper-aluminum weld joints.

Candidate of Technical Sciences P. I. Gurskiy (Institute of Electrical Welding imeni YE. O. Paton) reported on a semi-automatic units for cold butt welding of nonferrous metals and alloys.

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USSR

LYCHKO, I. I., and KAMALYAN, G. M., Svarochenoye Proisvodstvo,
No 3, Mar 71, p 58

Much interest was shown in the report of Candidate of Technical Sciences D. I. Kotel'nikov (Chernigov Affiliate of the Kieve Polytechnical Institute) which was devoted to the use of ion heating for solid-phase welding of nonferrous, refractory, and active metals. The technology and equipment have been developed for diffusion welding at temperatures up to 2260°C in a pressure range of 10 to 760 mm Hg.

8/8

- 11 -

USSR

UDC: 621.374.32

KURBASOV, V. V. and LYPKAN', N. M.

"Transistorized 100-MHz Decade With Switch"

Moscow, Priory i tekhnika eksperimenta, No 6, 1972, pp 86-88

Abstract: This article describes a binary, transistorized decade for the production of pulses from singles up to repetition rates of 120 MHz. Although transistorized switching circuits are not as fast as tunnel diode circuits, they are more reliable and have other advantages that make them better choices for instruments of this type. Input to the decade is a sinusoidal 100 MHz signal, and the bias to the input circuit is furnished through a switch. The circuit of the device is made up primarily of high-frequency transistors, type GT313B, and no rigid requirements had to be satisfied. Schematics of the decade itself, the switch block, and the coder at the decade output for connection to a digital printing device, are shown. The decade and the switch block were designed to measure time intervals with a timing resolution of 10^{-8} seconds. It is noted that this apparatus has been installed in the equipment for laser measurements of the moon, and has operated for two years without the need of repair.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--BIOSYNTHESIS OF PENICILLIN IN FERMENTING DEVICES OF VARYING
CAPACITIES -U-
AUTHOR-(04)-LEVITVO, M.M., LYRYE, I.M., ZAVILEYSKAYA, G.F., SOYFER, R.D.
COUNTRY OF INFO--USSR
SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 41-5
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BIOSYNTHESIS, PENICILLIN, FERMENTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0517 STEP NO--UR/0450/70/004/003/0041/0045
CIRC ACCESSION NO--AP0126265
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMT. OF BIOSYNTHESIS OF
PENICILLIN WAS SIMILAR IN THE FERMENTERS OF CAPACITIES 3000, 20,000, AND
50,000 L., BUT IN THE FERMENTERS OF CAPACITY 100 L. BIOSYNTHESIS OF THE
ANTIBIOTIC WAS 30PERCENT LOWER. FACILITY: VSES. NAUCH.-ISSLEU.
INST. ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

1/2 026
UNCLASSIFIED
TITLE--THE HEMOSTATIC EFFECT OF PRESERVED BLOOD AND BKB SERUM -U-
PROCESSING DATE--18SEP70
AUTHOR--(03)-KALCHENKO, I.I., LYS, P.V., RYABYY, P.A.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 4, PP 48-54
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BLOOD COAGULATION, DIGESTIVE SYSTEM DISEASE, HEMORRHAGE,
ERYTHROCYTE, BLOOD TRANSFUSION, PRESERVED BLOOD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1238
STEP NO--UR/0531/70/000/004/0048/0054
CIRC ACCESSION NO--AP0054133
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054133

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE SETS FORTH DATA ON CHANGES OF THE BLOOD COAGULATION SYSTEM IN PATIENTS WITH GASTROINTESTINAL HEMORRHAGES OF ULCEROUS ETIOLOGY, HEMOPHILIA, WERLHOF'S DISEASE, AFTER TRANSFUSION OF PRESERVED BLOOD AND ERYTHROCYTIC SUSPENSION OF DIVERSE STORAGE LIFE, AS WELL AS THE INFLUENCE OF BKB SERUM ON THE BLOOD COAGULATION. BLOOD COAGULATION INDICES WERE DYNAMICALLY STUDIED AFTER A SINGLE INTRODUCTION OF TRANSFUSION MEDIA IN 119 PATIENTS, OF THIS NUMBER IN 96 PATIENTS WITH GASTROINTESTINAL HEMORRHAGE OF ULCEROUS ETIOLOGY, IN 12, WITH WERLHOF'S DISEASE AND IN 11, WITH HEMOPHILIA. AN ANALYSIS OF THE RESULTS DERIVED HAS SHOWN THAT TRANSFUSION OF PRESERVED BLOOD WITH A STORAGE LIFE UP TO 2 WEEKS TO PATIENTS WITH GASTROINTESTINAL HEMORRHAGES OF ULCEROUS ETIOLOGY EXERTS A GOOD HEMOSTATIC EFFECT, THE ERYTHROCYTIC SUSPENSION IS NOT ENDOWED WITH SUCH AN ACTION. TRANSFUSION OF NATIVE PLASMA AND PRESERVED BLOOD IN A QUANTITY OF 220 TO 250 ML TO PATIENTS WITH HEMOPHILIA AND WERLHOF'S DISEASE IS INADEQUATE FOR THE COMPLETE ELIMINATION OF COAGULATION DISTURBANCES CHARACTERISTIC OF THESE DISEASE. IT BECOMES NECESSARY TO INCREASE THE DOSE OF THESE HEMOSTATIC SUBSTANCES AND SHORTEN THE INTERVALS BETWEEN TRANSFUSIONS. THE TRANSFUSION OF BKB SERUM CAUSES IN THE RECIPIENT NOTICABLE BLOOD COAGULATION DISTURBANCES IN ALL THREE PHASES. INASMUCH AS NORMALIZATION OF THE BLOOD COAGULATION IN MOST CASES TAKES PLACE THREE DAYS AFTER TRANSFUSION OF THE SUBSTITUTE, ONE SHOULD TAKE DUE CONSIDERATION OF THIS FACT DURING TRANSFUSIONS TO PATIENTS SUBJECT TO OPERATIVE TREATMENT.

UNCLASSIFIED

USSR

UDC 669.14.018.45:539.56

LYSAK, L. I., and VOYAKIN, V. N., Scientific Research and Engineering Design
Institute of Machine Building (Kramatorsk), and Institute of Metal Physics,
Academy of Sciences Ukr SSR

"Reversibility of the Brittle State of a Hardened Steel During Tempering"

Kiev, Metallofizika, No 39, 1972, pp 75-80

Abstract: The embrittlement of 20KhGMR, 30 KhGSA, and 38KhGN steels was studied during tempering in conjunction with the change of crystal lattice distortions in micro-regions of the alpha-solid solution as well as the effect of cooling rate after tempering on the reversibility of the embrittled condition. It was established that the degree of embrittlement at 300, 350, and 550°C depends on the cooling rate after tempering. During slow cooling, at the rate of 0.35°/min, a brittle state of the steel is formed which corresponds to the large crystal lattice distortions in micro-regions of the alpha-solid solution. An increase of cooling rate to 1000°/min leads to a soft condition and a decrease in the magnitude of crystal lattice micro-distortions. Results of this work led to the conclusion that it is not possible to examine the condition of the grain boundaries without consideration of the grain as a whole. Only the combined investigation of processes occurring at the boundaries and in the grain body permit full study of the nature of steel embrittlement during tempering.
2 figures, 2 tables, 15 bibliographic references.

1/1

USSR

UDC 669.14:548.7

LYSAK, L. I., VEKSLER, YE. YA., and GINZBURG, YE. S., Institute of Metal Physics, Academy of Sciences UKrSSR

"Investigation of the Relationship Between the Structure and Properties of Heat-Resistant 12Kh1MF Steel"

Kiev, Metallofizika, No 32, 1970, pp 69-79

Translation: This paper presents the results of an investigation of the metal of steam pipes made of 12Kh1MF steel in the as-delivered condition to study the relationship of the structure and properties of this steel, as well as in connection with a discussion of the possibility of a reliable operation of chromium-molybdenum-vanadium steels in power installations of high pressure and of high-unit capacity.

The investigation was conducted on the material of more than 600 hot-rolled pipes and showed the inhomogeneity of the metal of pipes from 12Kh1MF steel in the microstructure and properties, which was connected with the deviations of the actual conditions of the heat treatment of pipes from those recommended.

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LYSAK, L. I., et al., Metallofizika, No 32, 1970, pp 69-79

A relationship of the microstructure, as well as of the thin crystal structure, with the short-term mechanical and heat-resistant steel properties, was established. It was shown that the optimum combination of heat-resistant and mechanical steel properties in tests of short duration corresponds to a homogeneous structure of the products of intermediate transformation and ferrite, and that the embrittlement of pipe metal upon heat treatment observed in a number of cases was due to the reversible reduction in the impact toughness of steel over the range of tempering temperatures of 600°C.

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USSR

UDC 669.15--194:546.719:539.292

LYSAK, L. I., ANDRUSHCHIK, L. O., and STORCHAK, N. A., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Change in the Physical Properties of Hardened Steels at Low Temperatures"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 841-846

Abstract: Three steels were investigated to determine their physical properties at low temperatures. Compositions of the steels were (in %): 1.7 C and 6.0 Re, 1.3 C and 3.3 Mn, and the third contained 30% Ni. Martensite transformations were also studied in order to determine the nature of the so-called athermal and isothermal martensite.

After each experimental ingot was heated to 1000°C, it was water quenched to room temperature to obtain austenite. The Fe-Ni alloy was given a second heat treatment at 1100°C for two hours and was then water quenched. The relationship between the coefficient of thermal expansion and the change in the amount of martensite was determined at a temperature range of -200 to 0°C for both the Re- and Mn-steels. Magnetometric studies of both steels showed that no new portions of martensite were found when the temperature was increased from -200 to -120°C. The two phases formed when the samples were quenched in liquid nitrogen were α' -martensite and retained austenite. Since the phase composition remained unchanged between -200 and -120°C, one would expect the coefficient of thermal expansion to

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LYSAK, L. I., et al., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 841-846

be a straight line; however at approximately -170°C the slope of the thermal coefficient bends to a lower angle and at -140°C the angle of the curve bends downward a little more. The authors were unable to explain this anomaly.

In the Mn-steel the λ' -martensite to austenite transformation starts at $-145\pm 5^{\circ}\text{C}$. The decrease in the coefficient of thermal expansion during the transformation was believed to be the result of carbon atom ordering in the lattice pores and the relaxation of internal stresses.

If the λ' -martensite to austenite transformation plays a significant role in the formation of martensite during heating, then in carbon-free alloys in which there is no transformation, one would expect a less intensive formation of isothermal martensite during heating. Study of the Fe-Ni alloys showed that the same amount of martensite is formed regardless of cooling rate to -196°C . In the Fe-Ni alloys, as well as in alloys with additives of C, Mn, Mo, and Cr, in which there is no transformation, the austenite is supercooled and subsequent increase in temperature increases magnetization where the formation of martensitic needles will be observed. The reason for this vast difference in the property changes of these alloys is still unclear. It is possible that, in some manner, there is an atomic-ferromagnetic ordering effect in ternary alloys.

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LYSAK, L. I., et al., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70,
pp 841-846

The authors thank Academician G. V. Kurdyumov and Candidate of Technical
Sciences V. G. Gorbach for their assistance in this work.

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1/2 037
UNCLASSIFIED
PROCESSING DATE--27NOV70
TITLE--NATURE OF CHANGES IN THE PHYSICAL PROPERTIES OF HARDENED STEELS AT
LOW TEMPERATURES -U-
AUTHOR-(03)-LYSAK, L.I., ANDRUSHCHIK, L.O., STORCHAK, N.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL METALLOVED. 1970, 29(4), 841-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--PHYSICAL PROPERTY, MARTENSITE, MAGNETOMETER, RHENIUM
CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON ALLOY, ALLOY PHASE
TRANSFORMATION, DILATOMETRIC ANALYSIS, METAL RELAXATION, MAGNETIC FIELD,
ISOTHERMAL TRANSFORMATION, METALLURGIC RESEARCH FACILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0389 STEP NO--UR/0126/70/029/004/0341/0346
CIRC ACCESSION NO--AP0126144
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126144

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DILATOMETRIC AND MAGNETOMETRIC STUDIES WERE MADE OF PHASE TRANSFORMATIONS DURING SHARP COOLING IN LIQ. N AND ON SUBSEQUENT HEATING OF MN AND RE STEELS, AS WELL AS OF FE, NI ALLOYS. THE DECREASE IN THE AT. VOL. DURING THE X PRIME YIELDS ALPHA SUBM TRANSFORMATION LEADS TO PARTIAL RELAXATION OF INTERNAL STRESSES AT VERY LOW TEMPS., AND THIS ENHANCES THE RESUMPTION OF THE MARTENSITE TRANSFORMATION (FORMATION OF "ISOTHERMAL" MARTENSITE). THE STEELS STUDIED WERE MELTED IN A HIGH FREQUENCY FURNACE IN AR. THE MAGNETOMETRIC MEASUREMENTS WERE PERFORMED IN A MAGNETIC FIELD OF 6-7 KOE ON CYLINDRICAL SAMPLES. FACILITY: INST. METALLOFIZ., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 538.22:537.7:669.13:74.84-194

LYSAK, L. I., ANDRUSHCHIK, L. O., STORCHAK, N. A., and PRONOPINNO, V. G., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Method for Studying the $k' \rightarrow \alpha_m$ Transition on the Basis of the Change in Physical Properties of Hardened Steels at Low Temperatures"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep 70, pp 661-663

Abstract: The task of this work was the production of experimental data by a magnetometric method, as well as the measurement of the electrical resistance to confirm the fact that the change in R observed upon heating of steels quenched in liquid nitrogen is a result of the superimposition of two processes -- the increase of R resulting from formation of additional portions of k' -martensite from residual austenite and the reduction in R resulting from the $k' \rightarrow \alpha_m$ transition. A decrease in electrical resistance at below -100° was observed in manganese and rhenium steels, which could have been explained only by the structural changes related to the occurrence of the $k' \rightarrow \alpha_m$ conversion in these steels. The results of the experiments indicate that in order to study the $k' \rightarrow \alpha_m$ transition, the physical properties must be measured directly at the experimental temperatures, since cooling in liquid nitrogen for measurement of these properties leads to formation of additional martensite.

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USSR

UDC 669.15:546.719:548.537

LYSAK, L. T., and ANDRUSHCHIK, L. O., Institute of Metal Physics,
Academy of Sciences Ukr SSR

"Phase Transformation On Hardening Rhenium Steels"

Kiev, Metallofizika, No 32, 1970, pp 59-69

Translation: A survey is made of previously published papers on the study of the processes of $\gamma \rightarrow \gamma' \rightarrow \alpha_M$ transformations in rhenium steels by various physical methods, i.e., the x-ray diffraction and dilatometric methods and the method of measuring electric resistance. It was established by the x-ray method on single-crystal specimens that in rhenium steels of a wide range of concentration of carbon (0.8-1.7%) and rhenium (20-6%), on hardening in liquid nitrogen, γ' -martensite is formed, which on subsequent heating in a region below room temperatures is transformed into α -martensite. It was established that the crystal structure of γ' - and α -martensite of rhenium steels with a carbon concentration of less than 1.4% is tetragonal body-centered, and for high-carbon steels (1.4%), rhombic. The dependence of the parameters of γ' - and α -martensite on carbon concentration was studied.

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LYSAK, L. I., and ANDRUSHCHIK, L. O., Metallofizika, No 32, 1970, pp 59-69

When the change in electrical resistance was studied, an effect of R reduction over the range -160 to -150°C was found, which was due to the order of carbon atoms along the grains of the crystal lattice of a supersaturated α -solid solution on transformation of γ' - into α -martensite.

Dilatometrically, on temperature dependence curves of the relative length of the rhenium steel specimen rapidly cooled in liquid nitrogen, on heating, an inflection was found over the temperature range -160 to 135°C caused by a reduction in the coefficient of thermal expansion. This inflection is due to the $\gamma' \rightarrow \alpha_M$ transformation.

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LYSAKOV, Ye. I.

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TECHNICAL TRANSLATION

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ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYH IZLUCHENIYEM

AUTHOR: I. A. DERYGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IHERI T.G. SCHYCHENKO

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Acoustical and Ultrasonic

USSR

UDC 534.874.3
VOLOVOV, V. I., LYSANOV, Yu. F., and SECHKIN, V. A., Acoustic
Institute of the Academy of Sciences USSR, Moscow

"On Spatial Correlation of Acoustic Signals Reflected From the
Sea Bottom"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 1, Jan-Feb 73,
pp 16-20

Abstract: Experimental data are presented on the correlation
of envelopes of acoustic signals reflected from the sea bottom
and admitted on horizontally dispersed receivers. The experi-
ments were carried out on abyssal plains in Atlantic and Indian
Oceans at normal sound incidence on the sea bottom. It is de-
monstrated that by high frequency a correlation of enveloping
signals is absent, whereas by low frequency it appears to be
very high. The obtained results are explained by reference to
diagrams. Three types of fluctuations of acoustic signals re-
flected from the sea bottom are distinguished which are deter-
mined by different mechanisms and characterized by highly con-
trasting spatial periods. Four figures, seven bibliographic
references.

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LYSENKO, A.I.

JPR: 60367
25 October 1973

ELECTION MICROSCOPIC INVESTIGATION OF INTRAMURAL VESSELS IN SMALL INTESTINE
MYOTRANSPLANTATION

UDC: 615.361.541.014.41.07:611.161-096.1

[Article by A.I. Lysenko, I.D. Kirpichov, V.A. Nukov, N. Lysenko, First Moscow Medical Institute, I.M. Sechenov, People's Friendship University, Leningrad, and Laboratory of Organ and Tissue Transplantation, USSR Academy of Medical Sciences, Moscow; Moscow, Vsesoyuznyy Nauchno-Issledovatskiy Tsentr, Russian, No 9, 1973, pp 81-86]

In recent years, there has been considerable increase in interest in transplantation of organs involving sharply different species. The mechanism of transplant rejection began to be investigated on models of many organs: kidneys (V.S. Melnikova and I.V. Nemtchenko; Pechet and Najarian; Rosenberg et al., 1969, 1971), liver (R.N. Korotkova et al., 1971; H.S. Margulis), heart (R.N. Korotkova et al., 1971a), skin (D.S. Novikov et al.). We know that there may be some differences in manifestations of isleular incompatibility in different organs. We undertook an election microscopic study of intramural vessels of the small intestine of the calf, with extra-corporal connection of an intestinal segment to the femoral vessels of a dog. We did not encounter similar work in the literature.

We examined the vessels in the case of autotransplantation and transplantation of a small-intestinal segment. The experimental technique was described by I.D. Kirpichov et al. For xenotransplantation (four experiments), the material was sampled at the following times: at the end of the operation, after 7, 15, 20, 30, 45, and 55 minutes; 20 control experiments (five) with autotransplantation: at the end and 4 hours after connecting the small intestine to the femoral vessels. In all, we performed nine experiments involving 23 examinations. The material was fixed according to Conifield and imbedded in paraffin. We prepared, for ultramicroscopic cutting, sections 1-2 microns in thickness, stained them with toluidine blue, and examined them under a lamp microscope. Ultrathin sections were viewed using an UEM-100V election microscope.

After connecting a segment of the calf's small intestine to the dog, we observed severe, local circulatory disorders in the transplant, leading to spontaneous arrest of circulation within 30-55 minutes. As a rule, the

over

USSR

UDC: 621.396.69:621.319.4(088.8)

LYSENKO, A. I., ABRAMOV, N. Ye., VOLKOV, Yu. I.

"A Device for Assembling the Seal and Rolling up the Shell of a Capacitor"

USSR Author's Certificate No 260023, filed 3 Jul 68, published 27 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V363 P)

Translation: The proposed device for assembling the seal and rolling up the can of a fixed capacitor with axial leads contains a mechanism for feeding in the sealing liners, a mechanism for punching out the liner with the capacitor lead, a mechanism for locating the liner in the can, and a mechanism for rolling up the can. As a distinguishing feature of the patent, assembly precision is improved by making the mechanism for punching out the liners with the capacitor leads in the form of a hollow rotating cylinder which is fitted at one end with an elastic clamp which holds the liner, and at the other end with an inner cone which receives the outer cone of a stationary sleeve equipped with a push rod which feeds in the liners.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHANGES OF BLOOD SERUM PROTEIN FRACTIONS IN PATIENTS WITH MALIGNANT
NEOPLASMS -U-
AUTHOR--(051)-TSUTSAYEVA, A.A., LOBASENKO, N.P., LYSENKO, A.I., ROZINOV,
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CIRC ACCESSION NO--AP0129103
ABSTRACT/EXTRACT--(U) GP-0-

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ABSTRACT. PATIENTS WITH MALIGNANT TUMOURS SHOW A QUANTITATIVE QUALITATIVE CHANGE OF THE BLOOD SERUM PROTEIN CONTENT. INCREASE OF BLOOD SERUM GLOBULINS AND DECREASE OF ALBUMINS, DECREASE OF THE ALBUMIN GLOBULIN COEFFICIENT IN ONCOLOGICAL PATIENTS ARE NONSPECIFIC OF THE TUMOR GROWTH. BUT AT THE SAME TIME THE BLOOD SERUM OF ONCOLOGICAL PATIENTS SHOWS AN ATYPICAL PROTEIN NOT CONNECTED WITH C REACTIVE PROTEIN, WHICH IS DETECTED IN THE ALPHA 2 FRACTION AND APPEARS REGULARLY AT THE II-III STAGES OF THE DISEASE. FACILITY:

KAFEDRA MIKROBIOLOGII, KHAR'KOVSKOGO MEDITSINSKOGO INSTITUTA
BIOFIZICHESKAYA LABORATORIYA, KHAR'KOVSKOGO NAUCHNO-ISSLED. INSTITUTA
VAKTSII I SYVOROTOK, OBLASTNOY ONKOLOGICHESKIY DISPANSER.

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